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and most important references. The work is thus condensed, yet sufficiently comprehensive to meet the needs of the specialist and general student, for whom the work is particularly designed. If the succeeding bird parts conform to the present standard it will be of the utmost service, and deserve the wide support we heartily wish it. — J. A. A.

Mearns on the 'Ornithological Vocabulary of the Moki Indians.'¹ — In this paper the Moki names are given for most of the birds found in the Moki country in Arizona, some two hundred or more in number. The list was prepared with the aid of Dr. Mearns's "venerable friend Ongwischey (Raven)," an intelligent Indian who took interest in the work. A brief account of the Moki people and their country precedes the vocabulary of bird names. In addition to the names there are annotations here and there of much ornithological interest, but the paper is mainly of value to the anthropologist. — J. A. A.

Papers on Economic Ornithology. — Mr. Sylvester D. Judd's paper entitled 'Methods in Economic Ornithology, with special reference to the Catbird'² is of special interest, aside from its bearing on Economic Ornithology, from the fact that insects supposed to be distasteful to birds on account of their nauseous odors or more or less acrid secretions, do not in fact prove to be so, and are thus not secure from the attacks of birds by these supposed 'protective' qualities, as so many writers on 'protective mimicry' have assumed. Thus Mr. Judd has found that 9 out of 13 Catbirds taken in a little gully near Washington, on July 30, 1895, where ripe elderberries and blackberries were abundant, had partaken liberally "of the destructive locust beetle, 18 of these orange and black pests having been taken from one bird. This is surprising, because beetles of this family (Chrysomellidæ) secrete a substance which is supposed to be distasteful to birds. . . . In the insect food of these birds there were no ants or grasshoppers, but, on the other hand, the supposedly distasteful locust leaf mining beetles." Again, in his experiments with live birds kept in a cage for the purpose of studying their food preferences, Mr. Judd found that "Stink bugs (Pentatomidæ), whose nauseating odor is familiar to every one who has been berrying, were eaten by the Catbirds, even when they had been well fed with other food." He says further: "Bad smelling beetles (Carabidæ), which have been supposed to develop their stench to protect them from birds, were snatched as soon as they were put on the cork" (a floating cork island in a large bowl of water, used to prevent the insects escaping). That this preference was not due to confinement or unnatural conditions is shown by the fact that "Beetles formed, in the 200 [wild] Catbird stomachs examined, the most important part of the

¹ Amer. Anthropologist, Dec., 1896, pp. 391-403.

² American Naturalist, May, 1897, pp. 392-397.

animal food, and among these beetles strong scented *Carabidæ* were found oftener than any others." Here is certainly 'food for reflection!'

Mr. Judd, in this excellent paper, not only treats of the food of the Catbird, but gives an exposition of the methods employed in his investigations, where observations on the habits of the wild birds in the field are supplemented by experimentation with captive birds as to their food preferences, and by stomach examinations to ascertain what wild birds have actually eaten. The results of Mr. Judd's investigations are highly favorable to the much maligned Catbird. While it has a partiality for fruits, experiment shows that it prefers mulberries to strawberries and cherries, and that these latter were never touched when mulberries were at hand. Also that the Catbird prefers red mulberries to white mulberries. It is further inferred that cherries and strawberries can be protected from the depredations of the Catbird by planting mulberries.

Mr. F. E. L. Beal writes of 'The Blue Jay and its Food,'¹ and states that "the examination of nearly 300 stomachs shows that the Blue Jay certainly does far more good than harm." It destroys "some grasshoppers and caterpillars and many noxious beetles," and "gathers its fruits from nature's orchard and vineyard, not from man's; corn is the only vegetable food for which the farmer suffers any loss, and here the damage is small." Mr. Beal's examinations of the Blue Jay's stomachs leads him to an optimistic view of his nest-robbing proclivities, which do not sustain "the accusations of eating eggs and young birds." The charges have no doubt been exaggerated, for no reasonable observer would assert that "eggs and young birds constitute the chief food of the Blue Jay during the breeding season." It is not perhaps strange that only a few of the birds examined were taken 'red-handed.'

Mr. Beal is also author of 'Some Common Birds in Their Relation to Agriculture,' issued by the U. S. Department of Agriculture as 'Farmer's Bulletin No. 54 (pp. 40, May, 1897), which "contains brief abstracts of the results of food studies of about thirty grain and insect-eating birds, belonging to 10 different families." These are the Cuckoos, Woodpeckers, Kingbird, Phœbe, Blue Jay, Crow, Bobolink, Red-winged Blackbird, Meadowlark, Baltimore Oriole, Crow Blackbird, Sparrows, Rose-breasted Grosbeak, Swallows, Cedarbird, Catbird, Brown Thrasher, House Wren, Robin, and Bluebird. Many of these abstracts are based on reports previously published by the United States Department of Agriculture in special 'Bulletins' or in its 'Yearbooks,' but others appear to be advance statements of results reached in investigations, the details of which have not yet been published. About a page of text is given to each species, which suffices for a clear summary of its status in relation to agriculture, based on scientific investigation of its food habits under the direction of the chief of the Biological Survey of the U. S. Department of Agriculture,

¹ Yearbook of the U. S. Department of Agriculture for 1896 (1897), pp. 197-206.

by his corps of assistants. Full-length text-figures illustrate 22 of the species treated. This opportune compilation cannot be too widely distributed, as it carries convincing evidence of the great economic importance of bird life to agriculture.

Another important and instructive paper recently issued under the same auspices is Dr. T. S. Palmer's 'Extermination of Noxious Animals by Bounties.'¹ Reference is made to both mammals and birds, and the conclusion is reached that this method of attempting the extermination of noxious animals is both expensive and futile. The objections to the system are (1) that the expense is out of all proportion to the benefit gained; (2) the impossibility of maintaining bounties in all parts of an animal's range; (3) the impossibility of maintaining equal rates in all States; and (4) the impossibility of preventing fraud, as the payment of bounties on animals imported from outside areas, or especially raised for the purpose, or for 'counterfeit scalps,' innocent species being palmed off on the ignorant official for injurious ones. This is especially liable to occur in the case of birds, and notably where bounties are offered for the House Sparrow. The statistics here given show that during the last twenty-five years not less than 3,000,000 of dollars have been expended for bounties within the United States, with the result that not a single species has thereby been exterminated, and, in most cases, with little benefit. As the custom of offering bounties is, however, apparently on the increase, this timely exhibit of how the scheme works ought to be of advantage as regards the future. The matter of holding the really noxious species in check by other methods is also intelligently discussed. — J. A. A.

Whitlock's Review of Herr Gätke's Views on the Migration of Birds.²

— In this extended critique of Herr Gätke's 'Heligoland,' the writer disclaims "any feelings towards Herr Gätke but those of the warmest admiration and respect." He says he "looked forward to the appearance of Herr Gätke's long-expected work with the greatest interest. On its first perusal, the novelty of the author's statements greatly impressed me, and after careful study I found them very difficult of acceptance." He then, he says, formed the plan of writing a paper on it for one of the current ornithological journals, but he soon found the subject too great to render this practicable, and hence this separate form of publication. His "sole aim has been to place the other side of the question" before his readers. Of Herr Gätke's work he says: "The opinions he expresses, on the

¹ Yearbook of the U. S. Department of Agriculture for 1896 (1897), pp. 55-68.

² The Migration of Birds | A Consideration of Herr Gätke's Views | By | F. B. Whitlock | Author of "Birds of Derbyshire," etc., etc. | (All rights reserved) | London | R. H. Porter | 7, Princes Street, Cavendish Square, W. | 1897.—8vo, pp. vi + 140. (Price, 3s. 6d. net.)